BOOK REVIEWS

Text-book of Preventive Medicine. By Hugh Rodman Leavell and E. Gurney Clark. 1953. Pp. xvi + 629, 66 tables, 22 figs. McGraw-Hill, New York, Toronto, and London. $8 ; 64*s.*

The sub-title of this interesting book is " An Epidemiological Approach to Preventive Medicine ". The editors are two distinguished and experienced Americans, both of whom are well known in Great Britain. Dr. Leavell is Professor of Public Health Practice in the School of Public Health of Harvard University, Massachusetts, and Dr. Gurney Clark is Professor of Epidemiology in the School of Public Health in Columbia University, New York City. Dr. Leavell was in England for a considerable time as a medical administrator of U.N.R.R.A., and he visited us again in 1949 to see for himself how the British National Health Service was working. He is president-elect of the American Public Health Association. Dr. Gurney Clark has a special interest in the problems of venereal disease and has been director of syphilis clinics in his own country. He has recently spent several months in Norway investigating the after-histories of cases of syphilis and has lectured at a recent meeting of the M.S.S.V.D.

Two of the eighteen chapters, including by far the longest, that on " The Doctor and his Community ", are by Dr. Leavell, and one is by Dr. Clark ; two further chapters are by the two editors jointly, and for the other thirteen a galaxy of talent has been secured from all parts of the U.S.A. The editorial work, which is not easy in a large book with so many contributors, has been done excellently : there is no duplication, all the chapters conform to the same pattern, and there is a good index.

The general theme is to " approach preventive medicine from the standpoint of the natural history of disease ", and " to expand the concept of preventive medicine for wider application ".

A complete definition of the causation of any disorder must encompass a consideration of *all* the agent-host and environmental factors which interact to provoke or perpetuate the process. This body of knowledge, properly orientated to the process and its development, constitutes the *natural history* of a disorder, a disclosure of multiple causes and effects.

From this concept of the natural history of a disorder, there emerge five levels at which preventive practices can be applied :

(*a*) health promotion
(*b*) specific protection
(*c*) early recognition
(*d*) disability limitation
(*e*) rehabilitation

Health promotion includes good nutrition (on which there is an excellent chapter by Dr. Shank), good living environment, and health education. " Sex education and counselling before and during marriage may have a direct effect on exposure to venereal disease."

Early recognition involves ' screening ' the general community, or a special section of it, by such methods as the serological testing of expectant mothers and premarital examinations. It involves prompt treatment so as " to prevent spread to others if the disease is communicable, to cure or arrest the disease process, to prevent complications or sequelae, and to shorten the period of disability. . . . Case finding in the early stage of disease . . . has been the back-bone of modern syphilis and tuberculosis control programmes and has now become the watchword in the control of chronic disease and cancer ".

Disability limitation and rehabilitation are important and the authors' recommendations follow standard lines.

It is demonstrated that " it is unreasonable and unrealistic to subscribe to a concept of singleness of cause " for most diseases. For example " the living causative agent of syphilis is the *Treponema pallidum*, yet not everyone gets syphilis who is exposed to it, nor do all those who get the disease exhibit the same course ". Again, syphilis is milder in women than in men. The natural history of syphilis and the ' levels of prevention ' are discussed at some length. In congenital syphilis, the groundwork may be laid before marriage. The father or mother may have had syphilis. There may have been no premarital examination, the examination may have been perfunctory, or the treatment may have been inadequate. It is recommended that serological tests for expectant mothers should be made first ' on booking ', and again ' late in pregnancy '. With regard to acquired syphilis, consideration must be given to the forces which operate to bring the agent and the host together. The agent and host elements are considered in some detail, as are such environmental factors as climate, family stability, income, housing, recreational facilities, and such community control measures as repression of prostitution, treatment, and contact investigation, all of which have a bearing on the incidence of the disease.

There is an interesting time-schedule on the agent-host interaction in syphilis. The approximate percentage of spontaneous ' cure ' is given as 25 to 35. " The agent-host interaction represents a biologic study between the aggression of the treponeme on the one hand and the resistance of the host on the other ". " Moist surfaces provide the avenues by which the organisms escape from the reservoir ". A factor mentioned in the use made

of facilities for treatment is the ' index of suspicion ' of medical agencies in the mind of the patient.

The editors state in one of their joint chapters that, though optimism pervades public health circles in respect of the complete eradication of syphilis, " the gaps in our knowledge are ample warnings that vigilance must not be relaxed. This is the moment, not for the demobilization of the vast forces that have been developed to combat syphilis, as some advocate, but, rather for the consolidation of all efforts to prevent the disease in all its aspects ".

I have picked out for special mention in this review the application of the methods advocated to the control of syphilis ; the editors define epidemiology as " a science concerned with the study of factors that influence the occurrence and distribution of disease, defect, disability, or death in aggregations of individuals ", and they declare that we must get away from the original conception of epidemiology as dealing only with *infectious* diseases.

The general pattern of the new epidemiological method is this :

(*a*) statement and definition of the problem to be studied
(*b*) appraisal of existing information
(*c*) formulation of hypotheses
(*d*) testing of hypotheses
(*e*) conclusions and practical application.

The application of this method to such conditions as hypertension, suicides, and accidents is described.

The following quotations are also worthy of mention :

Statistics is a tool of epidemiology and skill in its use is as essential to epidemiology as is skill in the use of clinical diagnostic instruments in the practice of medicine.

In the U.S.A. there has recently been a spectacular achievement in the prevention of gonococcal arthritis. In the U.S.A. there are about one million new cases of gonorrhoea annually, in whom, until recently, about 3 per cent. developed gonococcal arthritis, commonly some 10 to 30 days after exposure. It has now declined to 0·5 per cent. There is no evidence that strains of gonococcus exist which have a predilection for joints.

Many children with positive reactions to serologic tests (for syphilis) at birth are not actually infected. The test merely measures placentally transmitted reagin.

Forty years ago, general paralysis of the insane caused 10 per cent. of the mental hospital admissions : now it is less than 1·0 per cent.

There is a first class, unbiased, and unemotional account of the British National Health Service, and a valuable commentary on current controversies in the U.S.A. on medical care programmes. It is stated that the annual cost per person of the British National Health Service is less than half the amount spent in the U.S.A. from private and public purses on medical and dental care.

The book is readable, comprehensive, and a stimulator of thought, and should find a place on the bookshelves of all who wish to keep up-to-date with transatlantic thought on the prevention of disease. A. D.

Syphilitic Optic Atrophy. By Walter L. Bruetsch. 1953. Pp. 140. 30 figs. Thomas, Springfield, Ill., U.S.A.; Blackwell, Oxford. 40*s*.

This monograph appears at an opportune time. The development of blindness in the late stages of syphilis, coming on slowly and inexorably some 20 years after the infection has been incurred, either in the congenital or acquired disease, has been recognized in a vague way for over a century and was fully established in the 1880s by such writers as Fournier, Erb, and Westphal. To-day, although the incidence of the disease is much less in Great Britain than it was 25 years ago, it is still an important cause of blindness, while in the United States it has been variously estimated that there are between 25,000 and 50,000 persons blind from this cause. From time to time many theories have been advanced to explain the implication of the optic nerve, and until the revolutionary work of Lére in 1904 it was generally accepted that the main lesion lay in the ganglion cells of the retina ; the atrophy was thus considered, and usually called, " primary " optic atrophy. Pathological examinations have been relatively few, but the histological material gathered by Bruetsch fully bears out the view of the early French author that all cases of the disease have the characteristics of a secondary atrophy due to an inflammatory meningitis at the base of the brain affecting usually the intracranial portion of the optic nerve and the chiasma. It would therefore seem logical to substitute the term " syphilitic " for " primary " optic atrophy. While the pathological material presented in this monograph is of very great value, the therapeutic corollary is of still greater importance, for the author contends, and he backs up his contention with impressive material, that if diagnosed in its early stages the progress of the disease can be arrested. This is a new view-point in a condition hitherto considered hopeless, and depends upon the results of newer methods of therapy by malaria and penicillin which, in the author's view, should replace arsphenamine therapy. Early diagnosis in suspected cases—a matter which depends primarily on a close study of the peripheral visual fields—is thus of paramount importance and holds the key to the initial elimination of a disease which hitherto has been almost uniformly associated with tragedy.

The monograph is short, easily read, beautifully illustrated, and persuasive in its argument ; it will be of unusual value to the syphilologist, the neurologist, and the ophthalmologist as well as to the general physician. S. D-E.